

Species Diversity, 2000, 5, 317–328

New Peracarids (Crustacea: Malacostraca) from the Atlantic Deep Sea off Angola

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(Received 7 September 1999; Accepted 11 September 2000)

Tanaidacean and anthurid isopod material from the benthos at 1300 m depth off Angola is described, including a new species of each of *Malacanthura* (Isopoda, Anthuridae) and of *Collettea* (Tanaidacea, Anarthruridae). The known ranges of *Pseudotanaïs denticulatus* Bird and Holdich, 1989, *Paranarthrura intermedia* Kudinova-Pasternak, 1982, and *P. insignis* Hansen, 1913 are extended further south in the Atlantic.

Key Words: Tanaidacea, Isopoda, Anthuridae, *Malacanthura*, *Pseudotanaïs*, *Paranarthrura*, *Collettea*, *Sphyrapus*, Angola, Atlantic.

Introduction

During a survey of the marine sedimentary benthic infauna from a grid of 16 sites off Angola in the summer of 1998, the diverse community was found to include, *inter alia*, a number of tanaidaceans and an anthurid isopod. Specimens of the tanaidacean genera *Leptognathia* and *Leptognathiella* were in too poor a condition for valuable analysis. Of the remaining material, one of the tanaidaceans and the anthurid were new to science, while other tanaidaceans represented further material of previously under-recorded species, with some notable range extensions. This material is described below.

The sampling locality was off the coast of Angola, approximately 07°40'S, 11°43'E, on fine sandy silt (graphic mean particle diameter 11 to 12 µm, >20% clay) at 1300 m depth; the seabed water temperature was 4.2°C, pH 7.7, salinity 34.3‰, and oxygen concentration 61%. Samples were taken by a 0.25 m² Ussel box corer and sieved through a 0.5 mm mesh using a Wilson Auto-Siever[®].

The "Material" enumerated below refers only to the specimens examined for systematic purposes. These specimens are deposited at The Natural History Museum, London (NHM).

Systematics

Order **Isopoda** Latreille, 1817

Family **Anthuridae** Leach, 1814

Malacanthura sanidoda sp. nov.

(Figs 1–3)

Material. One female, holotype (registration No. NHM 1999.897); 1 manca,

paratype (NHM 1999.898).

Description. Female non-ovigerous (Fig. 1A) elongate, body length (rostrum to tip of telson) 10.2 mm, integument with numerous pits. Cephalon 1.25 times as long as wide, without eyes, rostrum rounded. Pereonites 1 and 3 to 6 subequal, longer than subequal cephalon and pereonite 2, pereonite 7 shortest; pereonites 4 to 6 each with indistinct shallow dorsal pit. Pleonites 1 to 5 fused, lines of fusion marked by cuticular grooves; pleonite 6 free, small. Telson (Fig. 3D) linguiform, without ridges, with 2 basal statocysts and paired distal setae.

Antenna 1 (Fig. 1B) with peduncle of 3 articles, 1st and 3rd articles subequal, 1.3 times as long as wide, 1st article with single distal seta, 3rd article with 3 distal setae; 2nd article 0.8 times as long as 3rd and as long as wide with outer sensory seta; flagellum with 6 articles, 1st article 3 times as long as wide, naked; 2nd and 4th articles each with single seta, distal article with 6 setae and 2 aesthetascs.

Antenna 2 (Fig. 1C) with 5-articled peduncle, 2nd article with inner distal seta and outer lateral extension bearing 3 distal setae, 3rd article wider than long, with paired distal inner setae; 4th article twice as long as 3rd, with inner recurved distal seta and sensory seta, single longer outer distal seta; 5th article 3 times as long as 3rd, with 4 setae along inner margin; flagellum 7-articled, distal article very small, each article with recurved setae on inner face.

Mandibular palp (Fig. 1D) of 3 articles, proximal article with single sub-distal seta, 2nd article with single long, distal seta, distal article short with 4 distal setae; molar process elongate, simple. Maxilla (Fig. 1E) with 6 or 7 closely adpressed distal spines. Maxilliped (Fig. 1F) 5-articled, article 2 shorter than distal 3 articles together; distal article set obliquely; endite absent.

Pereopod 1 (Fig. 2A) robust; basis subtriangular; ischium just less than twice as long as wide, with short ventrodistal spine; merus nearly 3 times as wide as long, with sinuous proximal and distal margins and paired ventral setae; carpus anaxial, rectangular, extending along about half of length of propodal ventral margin, with 4 ventral setae; propodus expanded, inner palmar surface with numerous fine setae and crenulate cutting edge (Fig. 2B), claw about one-quarter length of dactylus.

Pereopod 2 (Fig. 2C) less robust than pereopod 1, ischium 1.5 times length of merus, naked; carpus triangular, propodus linear; distal 3 articles with ventral setae, claw setose. Pereopod 3 (Fig. 2D) similar to pereopod 2, distal articles more setose, propodus with ventrodistal denticulate spine. Pereopod 4 (Fig. 2E) with rectangular carpus with dorsal sensory seta. Pereopods 5 and 6 (Fig. 2F, G) similar to each other, carpus rectangular with dorsal sensory seta, shorter than subequal merus and propodus; carpus and propodus each with single ventrodistal denticulate spine bearing fine seta. Pereopod 7 (Fig. 2H) with rectangular carpus, no denticulate spine on carpus or propodus.

Pleopod 1 (Fig. 3C) with operculiform, pitted exopod, endopod almost as long as exopod. Uropod margins setose, endopod (Fig. 3A) ovate, reaching tip of telson; exopod (Fig. 3B) just reaching endopod base, outer margin sinuous with pectinate setae; apex rounded, distal setae simple.

Male unknown.

Etymology. From the Greek for “flat like a plank,” an adjective referring to the unridged telson.

Remarks. The genus as currently accepted is of predominantly African distri-

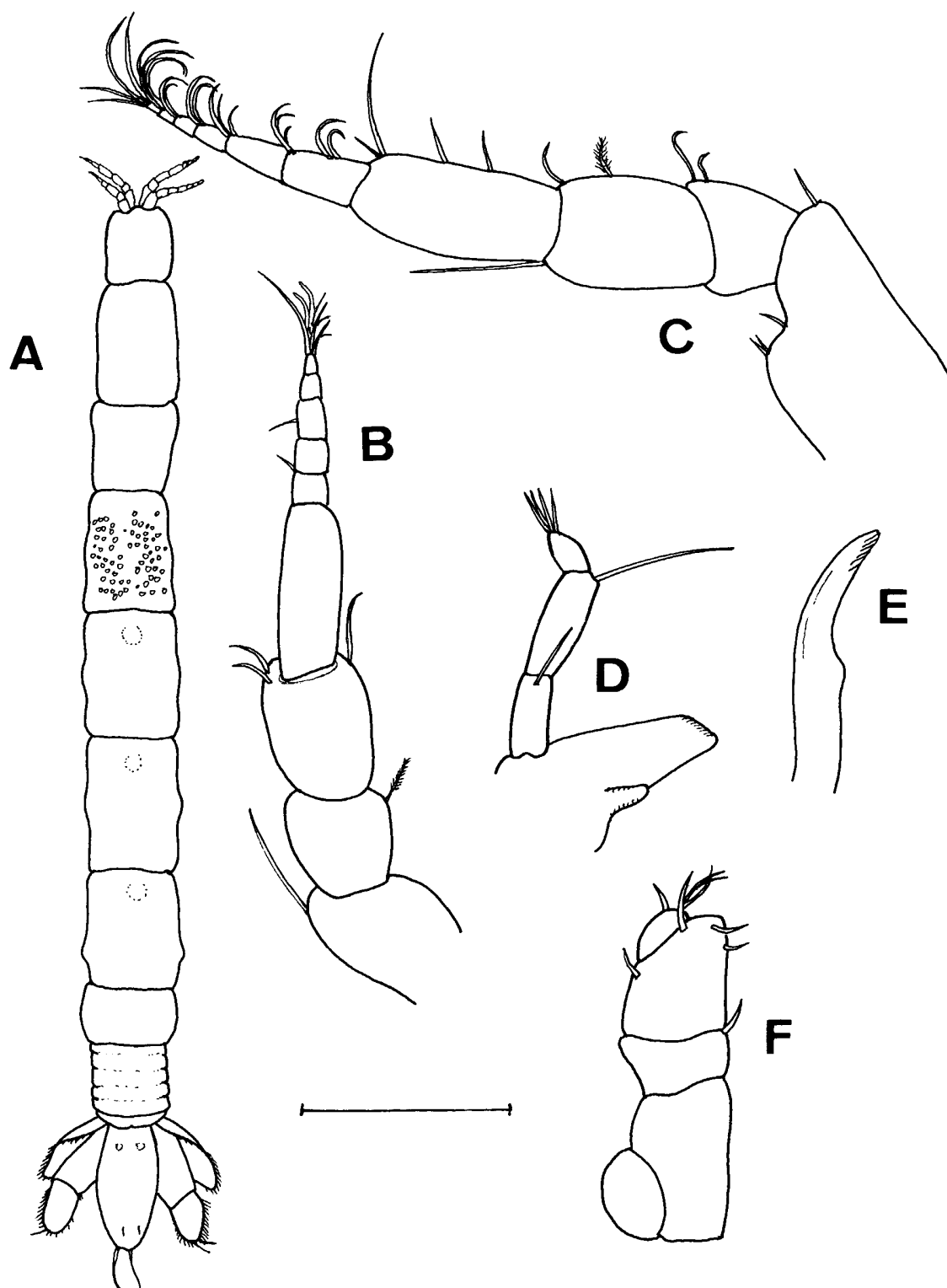


Fig. 1. *Malacanthura sanidoda* sp. nov., holotype female. A, body, dorsal; B, right antenna 1; C, left antenna 2; D, left mandible; E, maxilla; F, maxilliped. Scale line=2 mm for A, 0.24 mm for B-D and F, 0.2 mm for E.

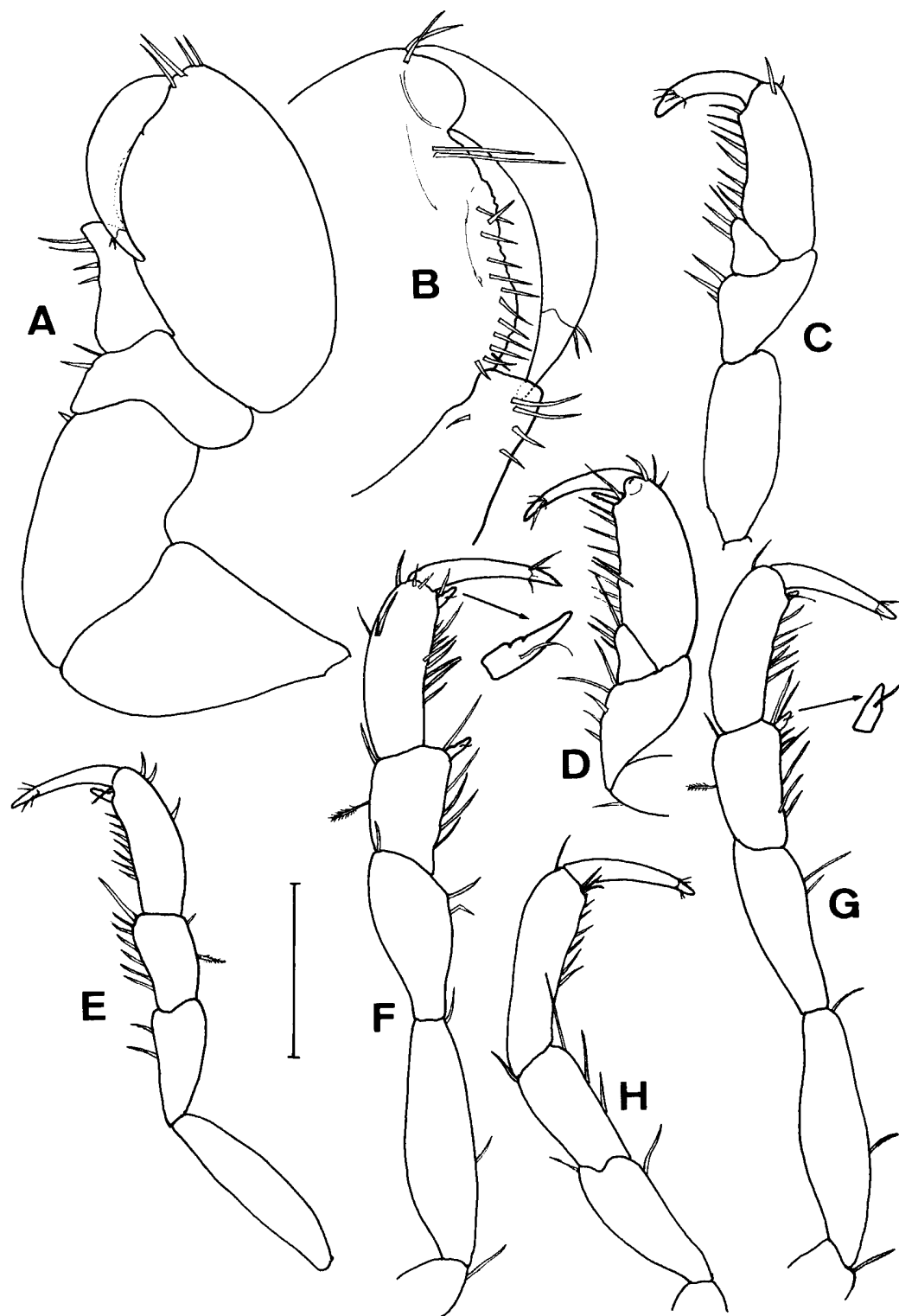


Fig. 2. *Malacanthura sanidoda* sp. nov., holotype female. A, right pereopod 1; B, detail of chela; C-H, right pereopods 2-7, respectively. Scale line=0.4 mm for A and C-H, 0.2 mm for B.

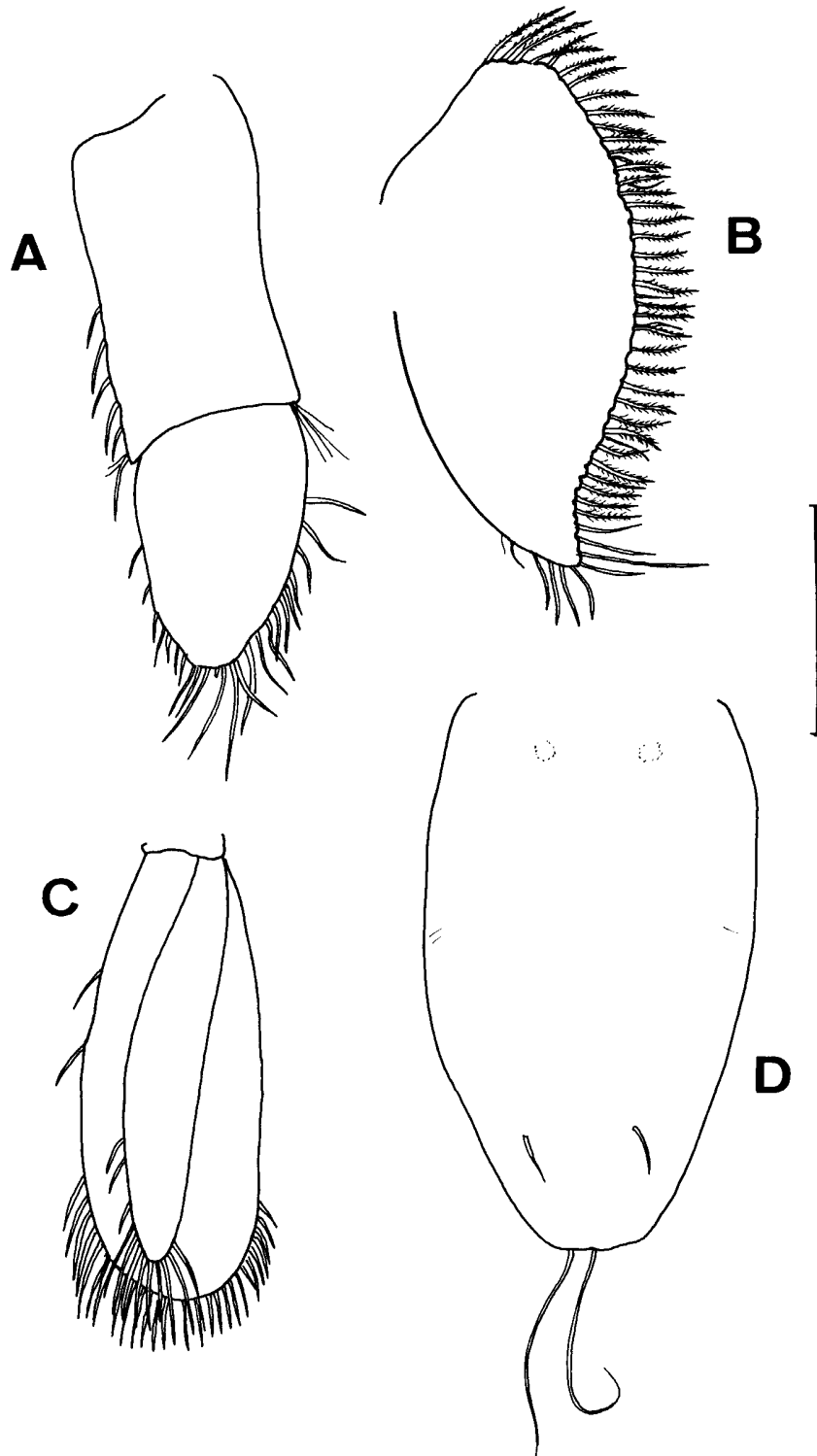


Fig. 3. *Malacanthura sanidoda* sp. nov., holotype female. A, uropod endopod; B, uropod exopod; C, pleopod 1; D, telson. Scale line=0.5 mm for A, B, and D, 0.7 mm for C.

bution. In its smooth telson the present species is distinct from those other species of *Malacanthura* without a maxilliped endite, which all have ridges or carinae on the telson. The atypical lack of eyes in the present species is not inconsistent with the depth at which it was found.

Order **Tanaidacea** Dana, 1849
Family **Sphyrapidae** Gutu, 1980
Sphyrapus malleolus Norman and Stebbing, 1886

Gutu 1980, fig. 1 (bibliography, classification).

Material. One male, 1 manca I, 1 manca II (NHM 1999.899).

Family **Pseudotanaidae** Sieg, 1977
Pseudotanaïs (Pseudotanaïs) denticulatus Bird and Holdich, 1989

Bird and Holdich 1989a, 258–263, figs 1F, 13–14.

Material. Eight adults (NHM 1999.900).

The commonest *Pseudotanaïs* in the north-east Atlantic, these records extend its distribution much further to the south.

Family **Anarthruridae** Lang, 1971
Paranarthrura intermedia Kudinova-Pasternak, 1982

Bird and Holdich 1989b, 153–158, figs 7, 8. (bibliography, distribution).

Material. Two non-ovigerous females (NHM 1999.901–902).

A large species, with fused, elongate uropod endopod articles and prominent corners on the pleotelson. Previously known as a “southern” species of the North Atlantic, having been recorded from the Rockall Trough to the Bay of Biscay and in the Mediterranean, and at depths from 1170 to 4190 m.

Paranarthrura insignis Hansen, 1913
(Fig. 4)

Bird and Holdich 1989b, 143–146, fig. 1b, j–k; fig. 2a–k (bibliography, distribution).

Material. Ovigerous female, length 6.3 mm; 2 non-ovigerous females, one manca II, lengths 1.8 to 3 mm (NHM 1999.903–906).

In his original description of this species from the Danish Ingolf Expedition material, Hansen (1913) remarked that the “... posterior margin of the chela is sinuate, showing three concave or flatly incised plates” Subsequent refigurings of this species by Lang (1971) and Bird and Holdich (1989b) have not shown this fea-

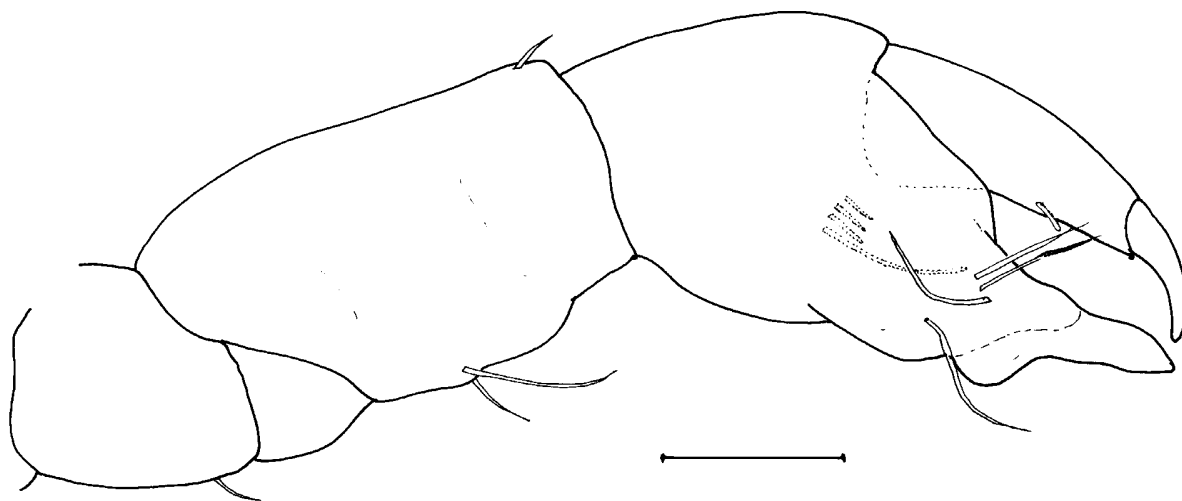


Fig. 4. *Paranarthrura insignis* Hansen, 1913, non-ovigerous female, right chela. Scale line = 0.1 mm.

ture, despite its being very conspicuous in the material from Angola (Fig. 4, from a 3.0 mm female). The three lobes project laterally from the lower margin of the fixed finger and are better developed in larger specimens (but are still evident in the manca II). The ovigerous female is unusually large for this species (previous records up to 4.3 mm) but shows no other difference. The setae on the uropods are distally filamentous.

The species has not previously been recorded this far south in the Atlantic, although Kudinova-Pasternak and Pasternak (1978) recorded it from the Caribbean.

***Collettea pegmata* sp. nov.**
(Figs 5–7)

Material. One non-ovigerous female, holotype (NHM 1999.907); 4 females, paratypes (NHM 1999.908–910); 1 female, paratype, dissected (retained).

Description of female. Body (Fig. 5A, D) slender, elongate, length of holotype 2.2 mm. Cephalon 1.3 times as long as wide, with rounded rostrum and small, naked ocular lobes (Fig. 5C); eyes absent. Six free rectangular pereonites, respectively 0.4, 0.6, 0.7, 0.9, 0.9, and 0.7 times as long as wide; tergal-scutal suture very faint. Five free subequal pleonites, each about 0.35 times as long as wide. Pleotelson long, cylindrical, distally rounded, 1.3 times as long as wide.

Antenna 1 (Fig. 5C) 4-articled, proximal article longer than other articles together; setose as figured, distal article with single aesthetasc. Antenna 2 (Fig. 5C) 7-articled, articles 2 and 3 with thick dorsodistal setae, articles 4 and 5 hardly articulated (fusing), article 7 minute.

Mouthparts typical of genus. Labrum (Fig. 6B) compact with distal “hood”; labium not seen; mandibles (Fig. 5B, E) with molar process large and finely denticulate distally, incisors with 5 rounded teeth; left mandible with lacinia mobilis, latter bearing 5 rounded teeth and smaller than incisor. Maxillule (Fig. 6C) slender with crown of 11 distal setae. Maxilliped endites not setose, palp (Fig. 6A) 4-arti-

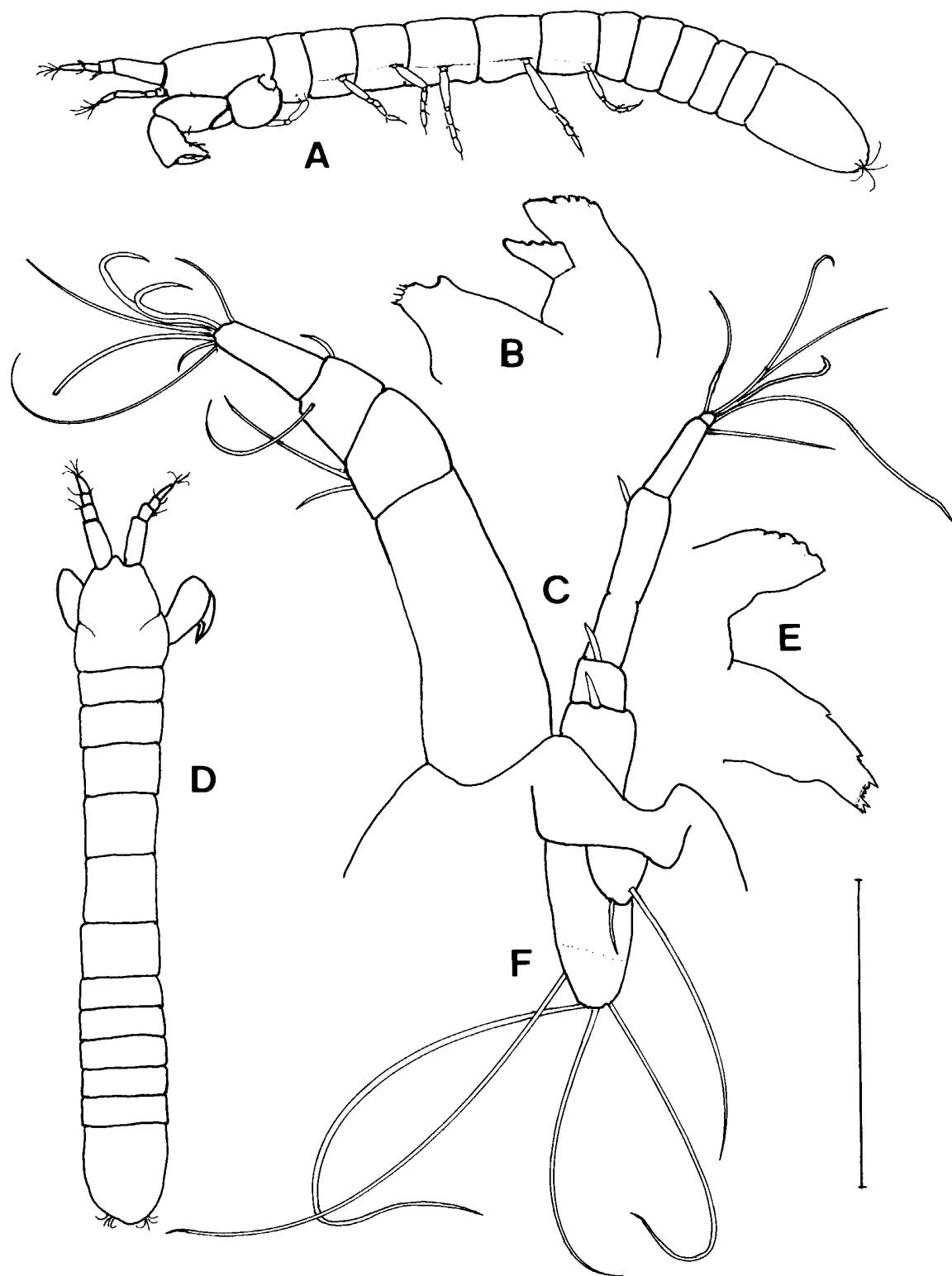


Fig. 5. *Collettea pegmata* sp. nov. A, holotype, lateral; B, left mandible; C, anterior of cephalon with left 1st antenna and right 2nd antenna; D, holotype, dorsal; E, right mandible; F, uropod (B, C, E, and F, female paratype). Scale line=1 mm for A and D, 0.2 mm for C, 0.1 mm for B, E, and F.

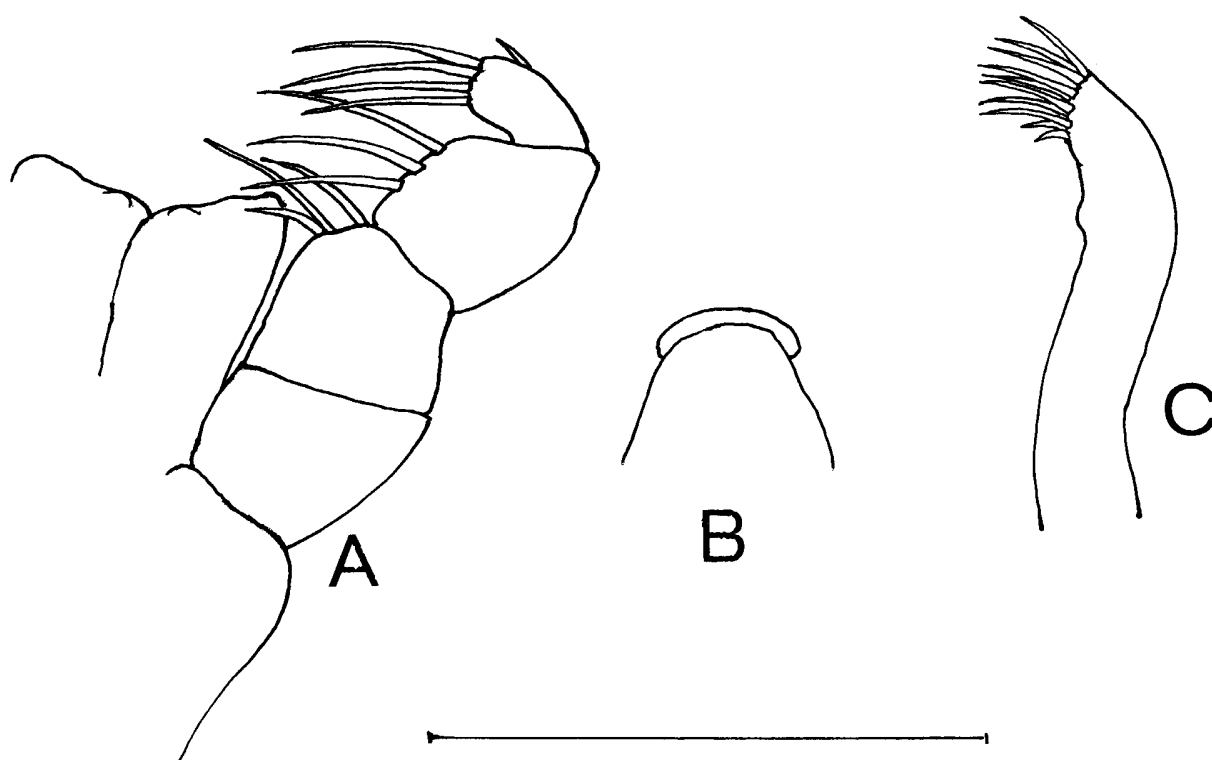


Fig. 6. *Collettea pegmata* sp. nov., female paratype. A, maxilliped palp; B, labrum; C, maxillule. Scale line=0.1 mm.

cled, articles respectively bearing 0, 3, 3, and 4 stout setae, distal article with additional outer simple seta.

Cheliped (Fig. 7A) with triangular merus with proximosternal seta; propodus with 1 long and 1 short setae at base of fixed finger, cutting edge with 3 setae; comb of 1 long and 4 short setae distally on propodus at base of dactylus; dactylus with single proximal seta.

Pereopod 1 (Fig. 7B) setose, coxa circular with single seta; merus with single distal seta; carpus with 1 longer and 2 short setae; propodus of equal length to carpus, naked, dactylus and claw subequal, slender. Pereopod 2 identical to pereopod 3. Pereopod 3 (Fig. 7C) as pereopod 1 but coxa naked; propodus longer than carpus, with thick subdistal sternal seta, no distal tergal seta. Pereopod 4 identical to pereopod 5 (Fig. 7D); merus bearing 2 distal setae (at least one of these being finely serrate); carpus with 4 longer distal setae, sternal pair finely serrate; propodus longer than carpus, with paired finely serrate subdistal sternal setae and simple distal tergal seta. Pereopod 6 (Fig. 7E) like pereopod 5 but propodus with pair of simple distal tergal setae. All dactyli plus claws slender.

Pleopods absent. Uropods (Fig. 5F) biramous, short, not projecting beyond posterior of pleotelson; exopod short, rotund, armed distally with short seta and long seta exceeding total length of uropod; endopod of single article, presumably evolved from fusion of 2 articles but any suggestion of articulation hardly discernible; all setae distal, elongate, curving.

Male unknown.

Etymology. From the Greek word meaning "congealed," an adjective refer-

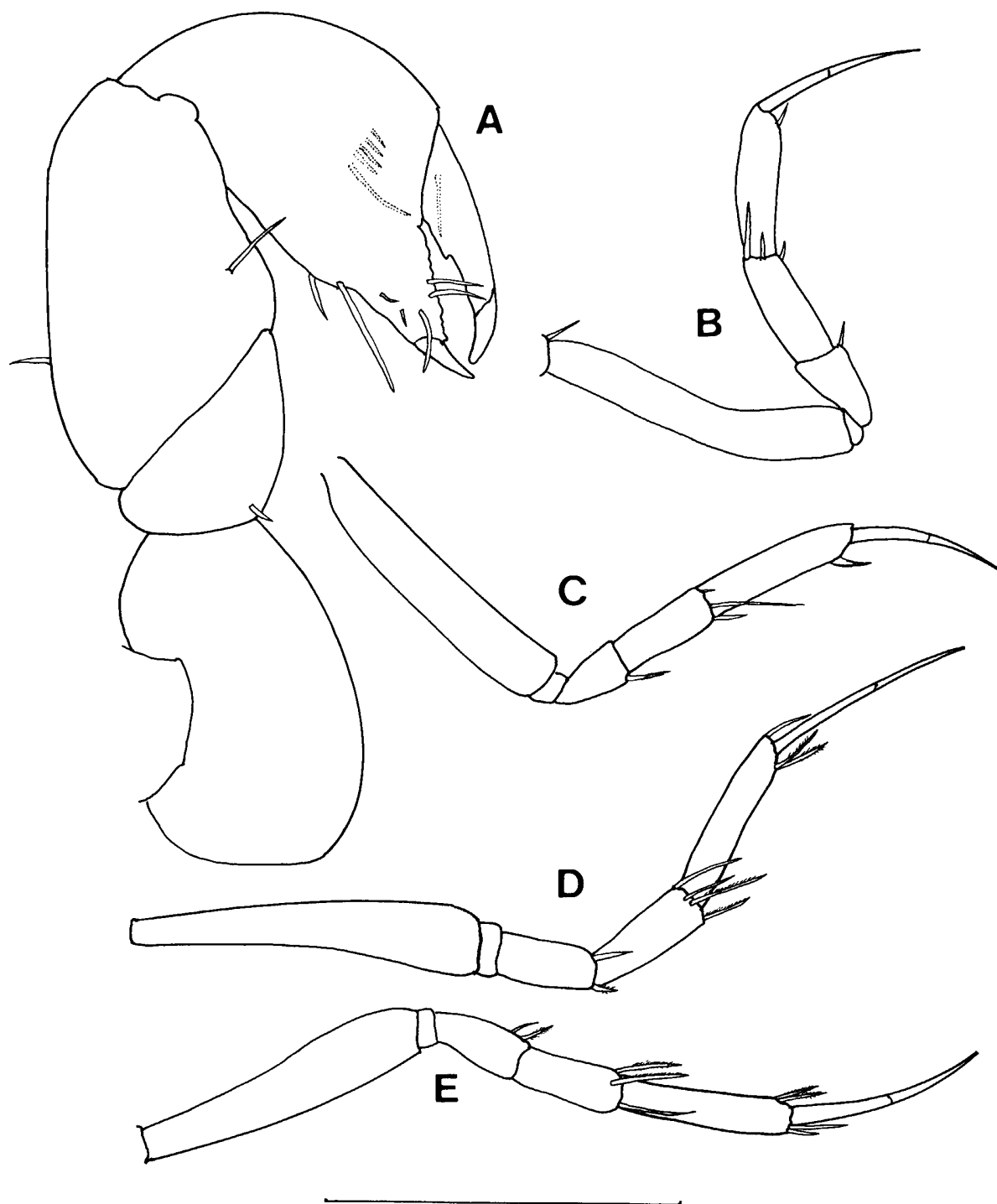


Fig. 7. *Collettea pegmata* sp. nov., female paratype. A, cheliped; B–E, 1st, 3rd, 5th, and 6th pereopods, respectively. Scale line=0.1 mm.

ring to the progressing fusion of the antennal and uropodal articles.

Remarks. The gross morphology of *C. pegmata* sp. nov. is reminiscent of that of *C. cylindrata* (Sars, 1882) (from the Atlantic and Pacific Subarctic, in depths of 40 to 6710 m). These species share with *C. arnaudi* (Shiino, 1978) (from the Subantarctic at 90 m depth) and *C. wilsoni* Larsen, 1999 (from the north-western Atlantic

Basin at 2480 m depth) the relatively short cephalon (length <1.5 times width) (see Sars 1882; Shiino 1978; Larsen 1999). Conversely, the new species shares only with *C. subtilis* Kudinova-Pasternak, 1981 (from 4300–5816 m depth in the North Pacific) and *C. minima* (Hansen, 1913) (from the Davis Strait and vicinity, 1905–6890 m depth) the absence of distal tergal setae on the anterior pereopods (see Hansen 1913; Kudinova-Pasternak 1981).

Most of these species show complete fusion of the fourth and fifth articles of the second antenna; the present species and *C. wilsoni* represent an intermediate stage with the articles fusing but retaining clear cuticular evidence of their articulation. *Collettea pegmata* is distinct from *C. wilsoni* in having the left mandible's lacinia mobilis shorter than the incisor (with different denticulation), and 11 distal setae on the maxillule (lacinia mobilis longer, and six maxillular setae in *C. wilsoni*). The minute fifth article on the first antenna of *C. wilsoni* described by Larsen (1999) was not discernible in the present species, but this may be because it was only visible in SEM according to Larsen. The fusion of the uropod endopod articles in *C. pegmata* is unique in this genus.

Occurrence

The co-occurrence of the species reported herein (and including the undetermined *Leptognathia* and *Leptognathiella* species) is indicated by the individual station lists below.

Station 1, *Pseudotanaïs denticulatus*, *Malacanthura sanidoda*

Station 2, *Paranarthrura intermedia*, *Paranarthrura insignis*, *Collettea pegmata* sp. nov.

Station 3, *Pseudotanaïs denticulatus*, *Leptognathia* indet.

Station 4, *Pseudotanaïs denticulatus*, *Malacanthura sanidoda*

Station 7, *Paranarthrura insignis*, *Pseudotanaïs denticulatus*, *Collettea pegmata* sp. nov., *Leptognathia* indet.

Station 9, *Paranarthrura insignis*, *Pseudotanaïs denticulatus*, *Collettea pegmata* sp. nov., *Leptognathia* indet (male).

Station 10, *Paranarthrura insignis*, *Pseudotanaïs denticulatus*, *Leptognathia* indet.

Station 11, *Paranarthrura insignis*, *Pseudotanaïs denticulatus*, *Leptognathiella* indet.

Station 13, *Sphyrapus malleolus*, *Collettea pegmata* sp. nov., *Leptognathiella* indet.

Station 14, *Sphyrapus malleolus*, *Paranarthrura intermedia*, *Paranarthrura insignis*, *Pseudotanaïs denticulatus*, *Collettea pegmata* sp. nov., *Leptognathia* indet.

Station 15, *Sphyrapus malleolus*, *Pseudotanaïs denticulatus*, *Leptognathia* indet.

Acknowledgements

I am grateful to Gardline Surveys Environmental Division and to Elf Exploration and Production for permission to work on their material and for supplying environmental data.

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